

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of the claims in the application:

1 1. (Currently Amended) A system for focusing electromagnetic energy on a target having a  
2 nature, functionality, purpose, operational state and threat, the system comprising:  
3 first means for ~~providing~~directing a pilot beam of electromagnetic energy toward the  
4 target to covertly obtain information from the target;  
5 second means for receiving a spatially and temporally dependent electromagnetic field  
6 having phase, frequency, amplitude, and polarization characteristics, wherein the  
7 electromagnetic field corresponds to a reflection of said pilot beam from the target which  
8 includes detected information from the target;  
9 third means for analyzing the received electromagnetic field from the target to determine,  
10 from the received electromagnetic field, information that is indicative of at least one of: the  
11 nature of the target, the functionality of the target, the purpose of the target, the operational state  
12 of the target and the threat of the target and in response to the information for providing data  
13 which is indicative of at least one of: the nature of the target, the functionality of the target, the  
14 purpose of the target, the operational state of the target and the threat of the target; and  
15 fourth means for receiving the data from said third means and in response to said data for  
16 providing a modulated information back to the target and wherein said fourth means is adapted  
17 to modulate the output beam by changing at least one of a phase characteristic, a frequency  
18 characteristic, an amplitude characteristic, a polarization characteristic and a carrier frequency  
19 wavelength characteristic and wherein the modulated output beam is predistorted to compensate  
20 for distortions, phase noise and amplitude noise in said received electromagnetic field.

1 2. (Original) The invention of Claim 1 wherein said first means includes a beacon laser.

1 3. (Original) The invention of Claim 2 wherein said beacon laser is mounted off-axis with  
2 respect to said output beam.

- 1 4. (Original) The invention of Claim 1 wherein said second means includes a telescope.
- 1 5. (Original) The invention of Claim 4 wherein said telescope is gimbaled.
- 1 6. (Original) The invention of Claim 5 wherein said second means further includes a detector in  
2 optical alignment with said telescope.
- 1 7. (Original) The invention of Claim 6 wherein said second means further includes a track  
2 processor in communication with said detector.
- 1 8. (Original) The invention of Claim 1 wherein said third means includes a wavefront error  
2 sensor.
- 1 9. (Previously Presented) The invention of Claim 8 wherein said fourth means includes means  
2 for providing an output beam which is a phase conjugate of said received electromagnetic field.
- 1 10. (Currently Amended) The invention of Claim 9 wherein said fourth means includes a  
2 deformable mirror and wherein the information from the target is used explicitly in a closed-loop  
3 processor to encode modulated information that is subsequently sent covertly back to the target.
- 1 11. (Original) The invention of Claim 10 wherein said fourth means includes mirror control  
2 means responsive to said wavefront sensor for controlling said deformable mirror.
- 1 12. (Previously Presented) The invention of Claim 11 wherein said first means corresponds to a  
2 beacon laser and said fourth means includes a second laser, different from the beacon laser, for  
3 illuminating said deformable mirror to provide said output beam.
- 1 13. (Previously Presented) The invention of Claim ~~12~~ 1 wherein the modulated output beam is  
2 adapted to affect the target in a predetermined manner.

1 14. (Previously Presented) The invention of Claim 13 wherein said fourth means includes  
2 means for detecting a modulation in a beam received from the target.

1 15. (Previously Presented) The invention of Claim 14 wherein said fourth means further  
2 includes a closed-loop system controller responsive to said means for detecting a modulation.

1 16. (Previously Presented) The invention of Claim 15 wherein said fourth means includes an  
2 electro-optic shutter disposed in the path of the output of said laser and responsive to said closed-  
3 loop system controller.

1 17. (Previously Presented) The invention of Claim 16 wherein said fourth means includes  
2 means for controlling said deformable mirror to effect a modulation of said output beam.

1 18. (Original) The invention of Claim 1 wherein  
1 n said third means and said fourth means are implemented with an optical phase conjugate  
2 mirror.

1 19. (Currently Amended) A system for focusing electromagnetic energy on a target comprising:  
2 first means for analyzing information included in a received electromagnetic field  
3 corresponding to a reflection of a beacon signal from the target to determine, from the  
4 received electromagnetic field, information that is indicative of at least one of: a nature of  
5 the target, a functionality of the target, a purpose of the target, an operational state of the  
6 target and a threat of the target and for providing data in response thereto, said  
7 electromagnetic field being provided by star light and electromagnetic field distortions  
8 being due to the atmosphere and wherein the electromagnetic field includes information  
9 covertly obtained from the target; and  
10 second means for receiving the covertly obtained information ~~the data~~ from said first  
11 means and for providing ~~an~~ a modulated output beam in response to said covertly obtained  
12 information ~~data~~ wherein said second means is adapted to modulate the output beam by  
13 changing at least one of a phase characteristic, a frequency characteristic, an amplitude

14 characteristic, a polarization characteristic and a carrier frequency wavelength characteristic  
15 and wherein the modulated output beam is predistorted to compensate for distortions, phase  
16 noise and amplitude noise in said received electromagnetic field.

1 20. (Original) The invention of Claim 19 wherein said first means includes a wavefront error  
2 sensor.

1 21. (Previously Presented) The invention of Claim 20 wherein said wavefront error sensor is  
2 adapted to detect distortions in star light and other phase and/or amplitude information in said  
3 electromagnetic field induced by the atmosphere.

1 22. (Original) The invention of Claim 21 wherein said second means includes a deformable  
2 mirror.

1 23. (Original) The invention of Claim 22 wherein said wavefront error sensor includes means  
2 for controlling said deformable mirror to predistort said output beam whereby said output beam  
3 is focused by said atmosphere at a target.

1 24. (Original) The invention of Claim 23 wherein said second means includes a laser for  
2 illuminating said deformable mirror to provide said output beam.

1 25. (Previously Presented) The invention of Claim 12 19 wherein the modulated output beam is  
2 adapted to affect the target in a predetermined manner.

1 26. (Previously Presented) The invention of Claim 19 wherein said second means includes  
2 means for detecting a modulation in a beam received from the target.

1 27. (Previously Presented) The invention of Claim 26 wherein said second means further  
2 includes a closed-loop system controller responsive to said means for detecting a modulation.

1 28. (Previously Presented) The invention of Claim 27 wherein said second means includes an

2 electro-optic shutter disposed in the path of the output of said laser and responsive to said closed-  
3 loop system controller.

1 29. (Previously Presented) The invention of Claim 19 wherein said first means and said second  
2 means are implemented with an optical phase conjugate mirror.

1 30. (Currently Amended) A method for focusing electromagnetic energy on a target having at  
2 least one of a nature, functionality, purpose, operational state and threat, the method including:

3 emitting a pilot beam of electromagnetic energy toward the target to covertly obtain  
4 information from the target;

5 receiving an electromagnetic field corresponding ~~due to~~ a reflection of the pilot beam from  
6 the target wherein the electromagnetic field includes covertly obtained information from the  
7 target;

8 analyzing distortions in the received electromagnetic field to determine, from the received  
9 electromagnetic field, information that is indicative of at least one of: the nature of the target, the  
10 functionality of the target, the purpose of the target, the operational state of the target and the  
11 threat of the target and providing data in response thereto wherein the data is indicative of at  
12 least one of: the nature of the target, the functionality of the target, the purpose of the target, the  
13 operational state of the target and the threat of the target wherein the information from the  
14 received electromagnetic field is used to encode modulated information that is subsequently  
15 transmitted back to the target; and

16 modulating ~~providing~~ an output beam in response to ~~said~~ the data, wherein said modulating  
17 includes modulating the output beam by changing at least one of a phase characteristic, a  
18 frequency characteristic, an amplitude characteristic, a polarization characteristic and a carrier  
19 frequency wavelength characteristic and wherein the modulated output beam is predistorted to  
20 compensate for distortions, phase noise and amplitude noise in the received electromagnetic  
21 field.